Instruments and Measurements

USSR

UDC: 621.316.92:621.314.6

FIRSOVA, L. D., SOKOLOV, S. D., LUPYAN, A. G., KISHINEVSKIY, R. N., KISELEV, N. M., Design and Planning Office of the Main Administration of Electrification and Power Management of the Ministry of Ways of Communication

"A Device for Protection and Signalling the Breakdown of Diodes in a Semiconductor Rectifier Installation"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6, 1970, p 55, patent No 262248, filed 15 Apr 64

Abstract: This Author's Certificate introduces a device for protection and signalling the breakdown of diodes in a semiconductor rectifier installation with diodes connected in series-parallel. The unit contains shunting resistors and signal elements such as light bulbs which act on photoresistors connected in the input circuits of protection and alarm. As a distinguishing feature of the patent, the operational reliability of the device is improved by connecting the signal elements between the common points of groups of parallel-connected diodes and shunting resistors.

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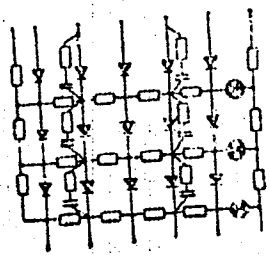
USSR

FIRSOVA, L. D., et al, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6, 1970, p 55, patent No 262248, filed 15 Apr 64



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42

USSR UDC 621.762.27

RUBTSOV, A. N., OLESOV, Yu. G., USTINOV, V. S., KISELEV, O. G., CHERKASHIN, V. I., and GLUKHOV, V. P., Dnepr Titanium-Magnesium Plant

"Production of Powders of Titanium Alloys and Refractory Titanium-Based Compounds From Titanium Alloy Waste"

Kiev, Poroshkovaya Metallurgiya, No 12, Dec 70, pp 18-23

Abstract: The method of electrolytic refining of titanium wastes can be used to produce high-quality titanium powder for further production use. Studies have established the following optimal electrolysis mode: anode and cathode current density 0.2-0.3 and 2.6-2.8 a/cm^2 respectively; temperature 870-890°C; cathode precipitate growth time 0.5-1 hr; titanium concentration in electrolyte 0.5-0.7%. The authors studied the production of electrolytic titanium powders from titanium sponge waste under near-optimal conditions. The quality of the electrolytic titanium powder was higher than that produced by hydride calcium thermal methods. Dehydrogenated powders of VT5 and VT6 alloys were produced, corresponding to the initial alloys in chemical composition.

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KISELEV, O. I.

BIOCHEMISTRY

JPRS 54849

4 January 1972

UDC 576.858

SYNTHESIS OF INFECTIOUS VIRAL RIBONUCLEOPROTEINS BY ISOLATED MITOCHONDRIA

[Article by F. I. Yershov, V. S. Goytskhoki, O. I. Kiselev, L. K. Manyelishis, O. V. Zaytsevs, Ye. V. Goyayev, S. K. Neyfakh, and V. M. Zhdanov, Moscow; Doklady Akademii Nauk SSSR, Moskva, Vol 200, No 6, 1971, signed to press 5 May 1971, pp 1452-1455]

We found in an earlier study /1/ that infectious RNA of Venezuelan equine encephalitis (VEE) virus penetrates into isolated rat liver mitochondria where it suppresses the transcription of mitochondrial DNA and itself becomes a matrix for virus-specific synthesis of RNA and protein using the energy generated by the mitochondria. At that time, however, we did not have proof that the mitochondria form a complete replicative complex and final product of synthesis - infectious ribonucleoproteins possessing infectious properties. The purpose of this work was to determine whether mitochondrial ribonuclease of the "material" type /2/ can synthesize normal virus-specific RNA polymerase and whether isolated mitochondria can ensure the complete replication of viral genome on virus-specific matrices included in the mitochondria.

Our objective was to find out whether all types of virus-specific RNA, including virion RNA with a sedimentation constant of 40 S, can be formed in "infected" mitochondria. Our first task was to study the dynamics of the synthesis of total viral RNA. We added to rat liver mitochondria unlabeled viral RNA (50 μg) obtained by the method described in /3/, and after 30 minutes of contact at 0° we incubated the material with C^{14}-pulse labeled RNA precursors at 37° in the presence of an effective concentration of actinomycin D (50 μg/ml). The pulse label was introduced at various times after the start of incubation of the mitochondria with unlabeled viral RNA (0 to 20, 20 to 40, 40 to 60, 60 to 80, and 80 to 120 minutes). This concentration of actinomycin D almost completely precluded the possibility of DNA-dependent synthesis of mitochondrial RNA /4/ so that the labeled precursors could be incorporated only into newly synthesized viral RNA.

The incorporation of C^{14}-labeled precursors into RNA calculated in counts/min per unit of optical density of RNA at 260 mμ was, respectively, 1600, 2100, 3800, 1500, and 500.

USSR

UDC 576.858

GAYTSKHOKI, V. S., YERSHOV, F. I., KISELEV, O. I., MEN'SHIKH, L. K., ZAYTSEVA, O. V., URYVAYEV, L. V., ZHDANOV, V. M., Member of the Academy of Medical Sciences USSR, and NEYFAKH, S. A., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow, and Institute of Experimental Medicine, Academy of Medical Sciences USSR, Leningrad

"Reconstruction of the Autonomous Genetic and Protein-Synthesizing System from Virus RNA and Isolated Mitochondria"

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 1, 1971, pp 220-223

Abstract: In experiments performed on isolated mitochondria of rat liver incubated with H^3-RNA obtained from purified Venezuelan equine encephalomyelitis virus, it was demonstrated that the virus RNA enters the mitochondria and is incorporated into their autonomous system of protein synthesis, for which the mitochondria supply the necessary energy. Transcription of the mitochondrial DNA is inhibited, the virus RNA is replicated, and thus virus proteins are synthesized.

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USSR

UDC 576.858.098.396.332.083.1

GAYTSKHOKI, V. S., YERSHOV, F. I., KISELEV, O. I., MEM'SHIKH, L. K., ZAYTSEVA O. V., YRYVAYEV, L. V., ZHDANOV, V. M., and NEYFAKH, S. A., Institute of Experimental Medicine, USSR Academy of Medical Sciences, Leningrad, Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

"Replication of Infectious Viral RNA in Isolated Mitochondria. Report I: Penetration of Viral RNA Into Mitochondria and Its Effect on Mitochondrial Synthesis"

Moscow, Voprosy Virusologii, No 3, May/Jun 71, pp 269-273

Abstract: Isolated rat liver mitochondria were incubated in a medium promoting oxidative phosphorylation and protein and RNA biosynthesis. H^3-RNA of Venezuelan equine encephalitis virus was added. It was found that after incubation, approximately 72% of the introduced radio-activity was in the mitochondria. It was concluded that the emergence of H^3-RNA of the virus in the mitochondria is not due to adsorption of RNA on the surface of these structures; instead, the cell fluid and actinomycin D stimulated RNA penetration. The distribution of viral RNA in mitochondrial subfractions was studied. Approximately 64% of the labeled RNA was found in the internal membrane and matrix fraction. Inhibition of RNA synthesis of mitochondrial protein was observed. The fraction of actinomycin-resistant protein synthesis

GAYTSKHOKI, V. S., et al., Voprosy Virusologii, No 3, May/Jun 71, pp 269-273

increases sharply. It was concluded that there maybe a link between the restructuring of mitochondrial ribosomes and the synthesis of mitochondrial proteins and virus-specific syntheses.

1 USSR UDC 576.858.098.396.332.083.1

YERSHOV, F. I., GAYSKHOKI, V. S., KISELEV, O. I., ZAYTSEVA, O. V., MENSHIKH, L. K., URYVAYEV, L. V., NEYFAKH, S. A., and ZBDANOV, V. M., Institute of Virology imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow, Institute of Experimental Medicine, USSR Academy of Medical Sciences, Leningrad

"Replication of Infectious Viral RNA in Isolated Mitochondria. Report II: Replication of Viral RNA in Mitochondria and Characteristics of the Final Product"

Moscow, Voprosy Virusologii, No 3, May/Jun 71, pp 274-280

Abstract: It was of interest to establish whether isolated mitochondria could replicate virus RNA, that is whether "bacterial" ribosomes could synthesize the functionally active RNA polymerase, and whether the final product of virus-specific synthesis has infectious properties. H^3-RNA isolated from purified Venezuelan equine encephalitis virus was used to study the function of virus RNA emerging in mitochondria. Contact between mitochondria and RNA was 30 minutes at 0°C. After this, the mitochondria were incubated under aerobic conditions for 2 hours at 37°C. After termination of the incubation period, RNA was separated by the phenol deproteinizing method and analyzed in a sucrose density gradient (5-30%). Peaks were found in the 40S and 26-20S region. The 40S area corresponds to RNA-ase and the 26-20S area to ribonu-

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USSR"

YERSHOV, F. I., et al., Voprosy Virusologii, No 3, May/Jun 71, pp 274-280
clease-resistant material, the replicative form of viral RNA. The data obtained indicate that the predominant portion of viral RNA appearing in mitochondria does not participate in the replication process and its dehydration products show up in the top zone of the gradient. No radioactive products of mitochondrial RNA translation were detected, which can be explained by the effective concentration of actinomycin D. As the newly synthesized RNA forms complexes with proteins, infectious activity increases. The complexes formed have subcellular structures and are separated from infected cells.

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USSR

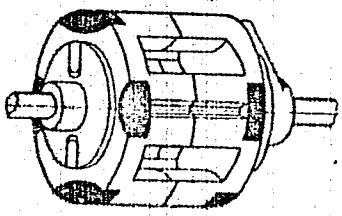
UDC: 621.372.837.1

YUR'YEV, F. N., KISELEV, R. I., ROGOV, L. S., FIRER, V. I.

"A Waveguide Switch"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 31, Nov 71, Author's Certificate No 318102, Division H, filed 24 Mar 69, published 19 Oct 71, pp 198-199

Translation: This Author's Certificate introduces a waveguide switch containing a stator and rotor with waveguide channels, radial grooves and absorbing elements. As a distinguishing feature of the patent, decoupling between channels is increased by locating the absorbing elements at the ends of ¼-wave grooves from the level of the narrow walls of the waveguide channels to the end faces of the rotor.



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USSR

UDC: 621.372.837(088.8)

KISELEV, R. I., ROGOV, L. S.

"A Waveguide Switch"

USSR Author's Certificate No 263883, filed 19 Apr 68, published 26 Jun 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1B209 P)

Translation: The proposed switch consists of a housing, a waveguide channel rotor and matching elements. To improve decoupling between channels, the matching elements are made in the form of quarter-wavelength grooves in the rotor inserts and quarter-wavelength clearance segments between the inserts and the housing. Two illustrations.

1/1

KISELEV, R. K.

Space Physiology

COLEEN

50: JPRS 53801

19 Aug 71

UDC 616-008.92-071616.632-074

CORRELATION BETWEEN RENAL EXCRETION OF DIFFERENT CATIONS UNDER CONDITIONS OF AN IMPAIRED MINERAL BALANCE

[Article by [illegible] Space Physiology) [illegible] R. K. Kiselev, G. P. Ousev, Ye. A. Lavrova and Yu. V. Natochin; Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, No 5, Sep-Oct 70, pp 74-77, submitted 4 April 1970]

The problem of maintaining water-mineral equilibrium is of great importance for medical support of space flights. It has been demonstrated that weight loss by cosmonauts is caused by excess elimination of water and minerals during flight (Yu. V. Natochin, et al.; Ye. I. Vorob'yev, et al.; S. A. Gozulov, N. I. Frolov). In the modeling of physiological conditions prevailing during weightlessness, in some cases man loses water and ions, especially sodium and calcium (David; Bowers, et al.; Cockett, et al.). The renal elimination of minerals can be caused by volume regulation as a result of blood redistribution (D. Gauer, J. Henry) and intensified calcium secretion during hypodynamia (M. Neuman, S. A. Gozulov and N. I. Frolov). It is known that in some physiological states there is a parallelism in sodium and calcium excretion by the kidneys; this has given basis for some researchers to postulate that the transport of these cations is closely linked (Giordano, et al.; Walser; Wesson).

In order to make a more thorough analysis of changes in the electrolyte balance during spaceflight it was of interest in investigations with human subjects to clarify the interrelationship between renal elimination of sodium and calcium in a broad range of changes in the state of water-mineral metabolism caused by prolonged exposure to a high temperature and restricted mobility.

Method

The investigation was made on 11 healthy males in the age group 21-23 years. The subjects at all times were in a chamber at a temperature of 40° for 10 days. Four experiments were carried out, in each of which three men were simultaneously in the same chamber. In such a heat regime

Acc. Nr: AP0036814

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, Immunobiologii, 1970, Nr 1, pp 43-47

INTERSPECIES EXCHANGE OF COLICINOGENIC FACTORS IN ENTEROBACTERIA IN VIVO

Kudlay, D. G.; Petrovskaya, V. G.; Kiselev, R. N.

Possibility of interspecies exchange of colicinogenic factors in enterobacteria in vivo (in the intestine of mice) was experimentally demonstrated between Shigellae and Escherichia and Salmonellae. When S. typhimurium cultures (natural for mice) were used there was seen a prolonged circulation of the originating colicinogenic variants, which were also isolated, along with the initial recipient strain, from the blood and organs of perished animals.

The possibility of genetic exchange of cholicinogenic factors in enterobacteria under natural conditions should be taken into consideration in analyzing and assessing the epidemiological materials of the outbreaks of intestinal diseases with utilization of colicinogenicity and colicinosensitivity as genetic labels.

DN.

REEL/FRAME
19721731

1/2 041 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--EXCITATION OF HYPERSOUND IN THE MILLIMETER RANGE -U-

AUTHOR-(03)-GANAPOLSKIY, YE.M., KISELEV, R.V., CHERNETS, A.N.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, DOKLADY, VOL. 191, APR. 11, 1970, P. 1015-1017

DATE PUBLISHED--11APR70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EXCITATION ENERGY, HYPERSONIC FLOW, QUARTZ, SINGLE CRYSTAL, LIQUID HELIUM, TEMPERATURE, ELECTROMAGNETIC WAVE OSCILLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0321 STEP NO--UR/0020/70/191/000/1015/1017

CIRC ACCESSION NO--AT0127902

UNCLASSIFIED

2/2 041 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0127902

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF EXPERIMENTS IN WHICH IT PROVED POSSIBLE TO EXCITE LONGITUDINAL AND TRANSVERSE HYPERSONIC WAVES WITH A FREQUENCY OF 75 GHZ IN A QUARTZ SINGLE CRYSTAL AT LIQUID HELIUM TEMPERATURE. THE RESULTS WERE OBTAINED WITH THE AID OF A METHOD PROPOSED BY GANAPOL'SKII AND CHERNETS (1963) IN WHICH HYPERSONIC WAVES ARE EXCITED BY MEANS OF AN ELECTROMAGNETIC DELAYED SURFACE WAVE. FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, INSTITUT RADIOFIZIKI ELEKTRONIKI, KHARKOV, UKRAINIAN SSR.

UNCLASSIFIED

USSR

UDC 621.791.8:669.715

KISELEV, S. N., KHAVANOV, V. A., ROSHCHIN, V. V., and TARAN, V. I.

Gazoelektricheskaya Svarka Alyuminiyevykh Splavov (Gas-Electric Welding of Alluminum Alloys), Moscow, "Mashinostroyeniye," 1972, 176 pp

Translation of Foreword: Welded structural elements made of aluminum and its alloys find wide application in various branches of industry. It is difficult to find a single industry where aluminum welded parts are not used. It is worthwhile to note that structural assemblies made of aluminum alloys can function under complex conditions of loads, temperature and aggressive media. It is now possible to produce structural members of aluminum alloys which are capable of functioning for long periods under complex operating conditions. Parts made of aluminum alloys can be welded regardless of thickness: from fractions of a millimeter for bellows assemblies, to several hundreds of millimeters, as in the case of heat exchangers. It is almost impossible to say at what thickness aluminum parts can no longer be welded. Application of the electroslag welding method, which was developed at the Institute of Electric Welding imeni Ye. O. Paton, has opened great possibilities for the welding of very thick aluminum parts. Development of heat-resistant aluminum alloys is being actively pursued in the Soviet Union and abroad. Because of high specific strength and resistance to corrosion, aluminum alloys find wide

USSR

KISELEV, S. N., et al, Gazoelektricheskaya Svarka Alyuminiyevykh Splavov (Gas-Electric Welding of Aluminum Alloys), Moscow, "Mashinostroyeniye," 1972 176 pp

application in the construction industry. Aluminum alloys are used for the production of wall panels, vitrages, casings, doors, various architectural decorative details, window casings, and pedestrian and transportation welded bridges. The high corrosion resistance of aluminum alloys has made possible their extensive use in the ship-building industry, especially for superstructures. Aluminum alloys are also used for the manufacture of large transportable containers, tanks, and other volume vessels, including railroad rolling stock. A large volume of welding of aluminum items is performed in the electrical industry. A gradual introduction of aluminum alloys in industries producing heat-exchanging equipment is one of the characteristic trends with respect to aluminum. Further application of welded aluminum structural elements in various branches of the machine-building industry depends to a great extent on new methods of welding aluminum alloys. Heretofore, aluminum alloys have been welded mainly in the horizontal position because of the high fluidity of molten aluminum. Lately, new welding methods have been developed which make it possible to weld aluminum alloys in all positions. For example, a new

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USSR

KISELEV, S. N., et al, Gazoelektricheskaya Svarka Alyuminiyevykh Splavov (Gas-Electric Welding of Aluminum Alloys), Moscow, "Mashinostroyeniye," 1972, 176 pp

pulsed welding method with fusable electrodes was developed at the Institute of Electric Welding. A new method for welding pipes by using pressure within the pipe was developed recently at the Scientific Research and Design Institute of Installation Technology (NIKIMTe). Automated welding of thick aluminum sheets in the vertical position was developed abroad. This method makes it possible to produce high-quality butt and angular welds. The development of new welding methods requires, as a rule, new welding equipment, in order to produce high-quality welds for structural members. This book summarizes the experience on production of weld assemblies from aluminum alloys in the Soviet Union and presents information on work carried out by Soviet and non-Soviet specialists on the production of weld construction members made of aluminum. Considering that this undertaking is very broad, the authors did not attempt to elucidate all problems related to the welding of aluminum alloys but emphasized mainly the gas-electric welding of aluminum. Welding of pipes and parts of large sizes that are used in critical assemblies are described in detail. Chapters 2, 7, and part of Chapter 6 were prepared by S. N. Kiselev;

USSR

KISELEV, S. N., et al, Gazoelektricheskaya Svarka Alyuminiyevykh Splavov (Gas-Electric Welding of Aluminum Alloys), Moscow, "Mashinostroyeniye," 1972, 176 pp

Chapters 1 and 5 by V. V. Roshchin; Chapters 3 and 8 by V. I. Taran; and Chapters 4 and 6 by V. A. Khavanov.

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KISELEV, S. N., et al, Gazoelektricheskaya Svarka Alyuminiyevykh Splavov (Gas-Electric Welding of Aluminum Alloys), Moscow, "Mashinostroyeniye," 1972, 176 pp

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USSR

KISELEV, S. N., et al, Gazoelektricheskaya Svarka Alyuminiyevykh Splavov (Gas-Electric Welding of Aluminum Alloys), Moscow, "Mashinostroyeniye," 1972, 176 pp

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USSR K UDC: 621.791.019.8

KISELEV, S.N., GRECHISHKIN, V.I., and RING, I.L., Moscow

"Obtaining High-Quality Weld Joints in Tubes Made of SAV-1 Aluminum Alloy"

Kiev, Avtomaticheskaya Svarka, No 5, May 70, pp 49-50

Abstract: Investigations were made of a technique for obtaining high-quality weld joints in tubes made of SAV-1 aluminum alloy. A dangerous flaws in the welding of tubes made of aluminum alloys are the oxide inclusions in the root of the weld. Correction of defective seams by auxiliary welding does not yield positive results, inasmuch as the porosity of the seams increases considerably. The reason for the formation of oxide inclusions in the root of the weld is the oxidation of the metal during welding. Thus, during the investigations the parts were carefully dressed It was decided that the metal in the maximum heating zone could best be protected by two means: blowing shielding gas into the tube and direct protection of the joint against oxidation. In the first case, before welding, a choke was inserted inside the tube at a distance of 300-400 mm from the weld. The hollow was filled with an approximately fivefold volume of protective gas (argon) blown through it. To compensate for gas leakage in the joint and connecting-piece ends, 8-10 liter/minute was continuously blown into the tube hollow. For welding with blowing of the protective gas directly into the weld-metal zone, a centering device was prepared with a hollow in the backing ring, from which the protective gas was fed

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USSR

KISELEV, S.N., e t al., Avtomaticheskaya Svarka, No 5, May 70, pp 49-50

through an 0.8 mm diameter hole. A radial groove 1.0 mm deep and 8 mm wide was made on the ring (its dimensions were increased to obtain greater amplification of the root of the weld); after welding, the root of the weld was machined to a height of 0.2-0.4 mm. The use of a deep groove with subsequent machining of the root of the weld increased the probability of obtaining defect-free welds. Argon consumption in welding by this method is 3-4 times less than in blowing the tube hollow with argon. External examination and x-ray and metallographic control of weld joints performed with supplementary protection of joints by blowing argon through the centering device showed the absence of nonfusion-type defects in the seams.

Thorium and Uranium Refining

USSR UDC: 669.822.053.2

VLASOV, V. G., REVEBTSOV, V. V., KISELEV, V. A.

"Carbon-Thermal Reduction of Mixtures of Uranium and Zirconium Dioxides"

Nauch. Tr. N.-I. i Proyekt. In-t Redkomet. Prom-sti [Scientific Works of Scientific Research and Planning Institute for the Rare Metals Industry], 1972, No 42, pp 106-115 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G260, by G. Svodtseva).

Translation: Carbon-thermal reduction of mixtures of ZrO_2 and UO_2 begins at 1600-1650° K. At 1870° K, reduction is completed in one hour. The rate of the reaction depends on temperature, apparent activation energy with low degrees of reduction amounting to 170-210 kj/mol, at the end of the process 230-250 kj/mol. The probabilities of various mechanisms of the interaction are studied. The leading interaction is that involving the vapor-phase oxide. The combined reduction of U and Zr oxides occurs with the formation of a solid solution of UC and ZrC. 3 figures.

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USSR

UDC 621.371.029.55

MAMRUKOV, A. P. and KISELEV, V. A.

"Time Changes of Applicable Frequencies in Subauroral Shortwave Radio Lines"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 468-472 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A347)

Translation: It is shown that the nature of the time changes in standard, prognostic, and operational signal of maximum applicability (SMA) remains the same, but that the values of these quantities are considerably different in individual periods. The best correspondence is observed in winter noon and summer midnight; the worst, in the spring noon and in spring and winter midnights. These differences are determined by the peculiarities of the ionosphere in subauroral zones and are not taken in account in the SMA prognosis. Two illustrations, bibliography of six. A. L.

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USSR

UDC 621.373.029.7

KISELEV, V. A.

"Optical Resonators with Ring 'Channel' Mirrors"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 10, 1972, pp 2020-2026

Abstract: In some gas lasers it is expedient to use optical resonators formed by two ring-type mirrors to increase the output power of the radiation. A study was made of resonators of this type with mirrors in the form of ring "channels." The analytical investigation of resonators with this configuration is complicated by the fact that in contrast to the previously studied cases it is impossible to introduce the orthogonal coordinates inscribed in the resonator in which the wave equation permits separation of the variables. Thus, certain practical restrictions are imposed on the geometric parameters of the resonator, and the field distributions of the natural oscillations and the resonance frequencies corresponding to them are defined approximately in symmetric stable resonators formed by mirrors in the form of concave annular "channels" and characterized by large Fresnel numbers.

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USSR UDC 669.71.053.24

KISELEV, V. A., MIRONOV, B. I., LEONT'YEV, L. I., KUDINOV, B. Z.

"Influence of Composition and Cooling Rate of Aluminum-Calcium Slag on Its Friability"

Tr. In-ta Metallurgii. Ural'sk. Fil. An SSSR [Works of Institute of Metallurgy, Urals Affiliate, Academy of Sciences, USSR], 1970, No. 22, pp. 34-40. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G128 by S. Krivonosova).

Translation: The friability of slags (III) improves with decreasing cooling rate and as the compositions of the III move away from the boundaries of the area of primary crystallization of $(CaO)_2 \cdot SiO_2$ and worsens with increasing Si-modulus. The most promising are III with Si-modulus <2.85-3, the compositions of which lie within or near the phase triangle $12CaO \cdot 7Al_2O_3$ -- $2CaO \cdot SiO_2$ -- $CaO \cdot Al_2O_3$. The cooling rate has less influence than chemical composition on the granulometric composition of slaked III. 2 figs; 2 tables.

1/1

USSR

UDC 669.71.053.4

KOZHEVNIKOV, G. N., KUDINOV, B. Z., LEONT'YEV, L. I., DUBOTOLKOV, G. P., KISELEV, V. A.

"Effect of Composition and Cooling Rate of Aluminum-Calcium Slags on Alumina Extraction"

Tr. In-ta metallurgii. Ural'sk. fil. AN SSSR (Works of the Metallurgy Institute. Urals Branch of the USSR Academy of Sciences), 1970, vyp. 22, pp 41-45 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G130)

Translation: In order to obtain slags with high technological qualities it is necessary to realize the process of reduction of the initial raw material so that the slags will have the following characteristics: Si-modulus 1.5-3.0 and Ca-modulus 1.5-1.55. From these slags it is possible to extract more than 90% Al_2O_3 with soda leaching independently of the cooling rate of the slags.

There are 4 illustrations and 2 tables.

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USSR

UDC 621.317.42

KISELEV, V. A., PRESNYAKOV, P. D.

"Device for Measuring and Automatic Recording of the Induction Distribution and Controlling the Thermal Stability of Magnetic Systems in a Broad Temperature Range"

Elektron. tekhnika. Nauchno-tekhn. sb. Kontrol'no-ismerit. apparatura (Electronic Engineering. Scientific and Technical Collection. Measuring and Control Equipment), 1970, vyp. 3 (21), pp 94-106 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A267)

Translation: A description and calculation of the errors of an experimental magnetometric device for measuring and automatically recording the distribution and variation of the induction in the working gap of magnetic systems in the temperature range from -70 to +200° C are presented. The device is based on a two-coordinate potentiometer with an accuracy of 1%. The possibility of compensation of the signal of the basic magnitude of the induction of the measured field and recording insignificant variations of it with variation of the temperature in a small measurement limit on a magnified scale insure a

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USSR

KISELEV, V. A., PRESNYAKOV, P. D., Elektron. tekhnika. Nauchno-tekhn. sb. Kontrol'no-ismerit. apparatura, 1970, vyp. 3(21), pp 94-106

reduction in errors in the relative measurements of the magnetic inductance to hundredths of a percent. The device permits the thermal stability of the magnetic system with a temperature coefficient of 0.2-0.002%/°C to be controlled.

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USSR UDC: 621.391.519.2

SMIRNOV, N. I., KISELEV, V. A.

"Statistical Characteristics of the Resulting Process at the Output of a Correlation Receiver"

Tr. uchebn. in-tov svyazi. M-vo svyazi SSSR (Works of Educational Institutes of Communications. Ministry of Communications of the USSR), 1970, vyp. 49, pp 24-29 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A78)

Translation: The authors give the results of "Minsk-22" computer modeling of the resultant process acting on the resolution circuit as a consequence of the simultaneous presence of overshoots of various functions of mutual correlation of complex signals formed on the basis of linear sequences. The degree to which the distribution of the process approaches normal distribution as the number of sequences and their durations increase is found. Resumé.

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1/2 040 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ROTATING RING RESONATOR IN A GRAVITATIONAL FIELD -U-

AUTHOR-(02)-VOLKOV, A.M., KISELEV, V.A.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 5, PP 1857-1861

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RESONATOR, GENERAL RELATIVITY THEORY, ELECTROMAGNETIC WAVE, VECTOR, TRAVELING WAVE, GRAVITATION FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0026 STEP NO--UR/0056/70/058/005/1857/1861

CIRC ACCESSION NO--AP0127676

UNCLASSIFIED

2/2 040 UNCLASSIFIED PROCESSING DATE--20NOV7C

CIRC ACCESSION NO--AP0127676

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF A GRAVITATIONAL FIELD ON THE EIGEN FREQUENCIES OF A ROTATING RING RESONATOR IS INVESTIGATED ON BASIS OF GENERAL RELATIVITY THEORY AND ELECTROMAGNETIC THECRY FOR CONTINUOUS MEDIA. THE COVARIANT EQUATIONS OF PROPAGATION OF ELECTROMAGNETIC WAVES IN A MEDIUM WHICH IS AT REST IN A ROTATING REFERENCE SYSTEM IN THE PRESENCE OF A GRAVITATIONAL FIELD ARE WRITTEN DOWN IN VECTOR FORM. THE EQUATIONS ARE SUED FOR STUDYING THE RESONANCE PROPERTIES OF A RING OPTICAL RESONATOR. FORMULAS FOR THE FREQUENCY SHIFT OF TRAVELLING WAVES AND FOR THE FREQUENCY DIFFERENCE OF OPPOSITE WAVES IN A RESONATOR WITH A NONMUTUAL ELEMENT ARE DERIVED FOR PLANE ELECTROMAGNETIC WAVES PROPAGATING IN A ROTATING RING RESONATOR. IT IS SHOWN THAT FOR LOW RESONATOR ROTATION VELOCITIES THE FREQUENCY DIFFERENCE FOR OPPOSITE WAVES DUE TO A STATIC GRAVITATIONAL FIELD IS GREATER THAN THE EFFECT DUE TO RESONATOR ROTATION BY SEVERAL ORDERS OF MAGNITUDE. THE EFFECT OF A STATIONARY GRAVITATIONAL FIELD CREATED BY A ROTATING MASS OF THE EIGEN FREQUENCIES OF A RING RESONATOR IS ALSO CONSIDERED. FACILITY: MOSKOVSKIY FIZIKO-TEKHNICHESKIY INSTITUT.

UNCLASSIFIED

USSR UDC 546.791'883.261

KISELEV, V. A., VLASOV, V. G., and ZUKIN, V. YE.

"Formation of Mixed Uranium and Tantalum Monocarbides During Concurrent Reduction of Their Oxides With Carbon"

Leningrad, Zhurnal Prikladnoy Khimii, Vol 45, No 8, Aug 72, pp 1657-1660

Abstract: It was established that the apparent activation energy of the thermal carbon reduction of a mixture of oxides increases with the development of the process from 120 to 390 kjoule per mole. The following intermediate products have been identified by x-ray phase analysis: uranium dioxide, tantalum pentaoxide, uranium carbide and tantalum carbide. By means of x-ray structural analysis it was shown that up to $\alpha = 0.35$ individual UC and TaC phases are formed. Next, concurrently with the reduction process, formation of solid solutions takes place. Homogenization of solid solutions could be achieved after 4 hrs at 2070°K or after 1.5 hrs at 2270°K. Formation of a continuous series of solid solution in the system UC--TaC was established. An assumption was made that the reactions pass through a stage of formation of vaporized oxides.

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USSR

UDC 514.183:541.124/128

ZARIF'YANTS, YU. A., KARYAGIN, S. N., KISELEV, V. F., KHRUSTALEVA, S. Y., and CHUKIN, G. D., Moscow State University imeni M. V. Lomonosov

"Possibility of the Control of Binding Forms of Adsorbed Molecules by Means of a Change in the Electronic State of the Semiconductor Surface"

Moscow, Doklady Akademii Nauk SSSR, Vol 202, No 1, Jan-Feb 72, pp 109-112

Abstract: IR and EPR spectra of p-benzoquinone (BQ) molecules adsorbed on rutile were studied. First passage of BQ over rutile powder leads to the the appearance of two bands in the IR spectrum at 1505 and 1470 cm^{-1}. The first band was assigned to >C:O grouping of the BQ molecule bound to coordination unsaturated Ti^{3+} atoms. This band is quite stable, even after heating the complex to 400° in vacuum it does not disappear. The 1470 cm^{-1} band was assigned to an anion radical of BQ formed by a transfer of an electron from the solid body directly onto the orbitals of the adsorbed molecule. With more complete saturations more bands appear: 1675 cm^{-1} assigned to BQ molecules bound with weak van der Waal forces to the surface, 1657 cm^{-1} -- due to the molecules hydrogen bonded to hydroxyl groups. Adsorption of BQ results in a negative charge on the surface of rutile. Population of the surface levels increases with increased Fermi levels. It was shown that with higher degree of reduction

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USSR

ZARIF'YANTS, YU. A., et al., Doklady Akademii Nauk SSSR, Vol 202, No 1, Jan-Feb 72, pp 109-112

the intensity of the 1470 cm^{-1} band increases, while oxidation of the sample (lowering Fermi levels) prior to the adsorption of BQ results in complete dis appearance of this band. When the rutile specimen was heated to 200° (after passage of BQ), the 1675 and 1657 cm^{-1} bands disappeared, the intensity of 1470 cm^{-1} bands increased, and that of 1505 cm^{-1} decreased respectively. At 400° the 1470 cm^{-1} band exceeds substantially the intensity of the 1505 cm^{-1} band. Also, rutile specimens irradiated with a UV lamp (filter transparent in the 400-700 mu region) shows identical behavior. Thus it was possible to stimulate a change in binding form of the molecules adsorbed on the surface, reflected by the IR spectra, by generating excess carriers through the illumination of solid body.

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1/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--EFFECT OF RADICAL CHEMISORPTION ON THE ELECTROPHYSICAL PARAMETERS OF THE REAL SURFACE OF GERMANIUM -U-

AUTHOR-(04)-KOZLOV, S.N., NOVOTOTSKIYVLASOV, YU.F., KISELEV, V.F., SHARAPOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 356-8

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CHEMISORPTION, GERMANIUM SEMICONDUCTOR, CRYSTAL SURFACE, CHARGE EXCHANGE, OXIDE FILM, EPR SPECTRUM, QUINONE, BENZENE DERIVATIVE, MOLECULAR INTERACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0084 STEP NO--UR/0449/70/004/002/0356/0358

CIRC ACCESSION NO--AP0105170

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105170

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHEMISORPTION OF STRONG ACCEPTOR MOLS. (N-BENZOQUINONE) ON N TYPE GE WITH HIGH RESISTIVITY (27 OHM CM) WAS STUDIED TO DET. THE MECHANISM OF CHARGE TRANSFER BETWEEN A SEMICONDUCTOR AND MOLS. CHEMICSORBED ON THE SURFACE OF A SEMICONDUCTOR OXIDE FILM. ALTERATIONS IN ELECTROPHYS. PROPERTIES OF THE SURFACE WERE STUDIED AT 300DEGREESK ON GE PLATES ETCHED IN BOILING H SUB2 O SUB2, WHILE ON GE POWDER, CHEMISORPTION WAS STUDIED BY EPR. WHEN N BENZOQUINONE WAS LET IN, THE SURFACE WAS QUICKLY CHARGED NEG. (TAU LESS THAN 2 MIN), THE CONCN. OF FAST SURFACE STATES INCREASED, AND THE MAX. RECOMBINATION RATE INCREASED SLIGHTLY (FROM 1050 TO 1350 CM-SEC). THE EPR PEAK INTENSITY AFTER 1 HR CORRESPONDED TO A SPIN CONCN. OF 1.1 TIMES 10 PRIME11-CM PRIME2 AND WAS NOT CHANGED IN THE COURSE OF A FEW DAYS, AS WELL AS ELECTROPHYS. PROPERTIES OF GE IN N BENZOQUINONE VAPOR. IT IS ASSUMED THAT NEW SURFACE STATES CAN BE CREATED BY DIFFUSION OF ADSORBENT MOLS. TO THE SEMICONDUCTOR OXIDE INTERFACE. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF THE ADSORPTION OF SOME MOLECULES ON THE ELECTROPHYSICAL PARAMETERS OF THE REAL SURFACE OF GERMANIUM -U-

AUTHOR-(03)-KOZLOV, S.N., NOVOTOTSKIYVLASOV, YU.F., KISELEV, V.F.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 353-5

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--GERMANIUM ALLOY, CARBON DIOXIDE, GAS ADSORPTION, CARBON MONOXIDE, SURFACE AREA, OXIDE FILM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1477 STEP NO--UR/0449/70/004/002/0353/0355

CIRC ACCESSION NO--AP0120264

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120264

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT WAS STUDIED OF THE ADSORPTION OF CO, CO SUB2, AND NO MOLS. ON THE SURFACE POTENTIAL, Y, THE CURVES FOR THE CHARGE CAPTURE BY FAST SURFACE STATES (Q SUBT), THE VALUE OF THE CHARGE CAPTURED ON SLOW SURFACE STATES (Q SUMNU), THE KINETICS OF SLOW PROCESSES (TAU), AND THE RATE OF SURFACE RECOMBINATION (SIGMA) FOR RHO AND N GE WITH A SP. RESISTANCE (25-30 OHM CM), ORIENTED PARALLEL TO THE (111) PLANE. THE FIELD EFFECT METHOD AT A HIGH, SINUSOIDAL SIGNAL WAS USED IN COMBINATION WITH THE STANDARD PHOTOCOND. THE DETNS. WERE MADE ON FRESHLY ETCHED SAMPLES (AFTER HOLDING IN A VACUUM FOR SEVERAL DAYS) AND ON SAMPLES HEATED IN A VACUUM AT 500DEGREESK. ALL OF THE MEASUREMENTS WERE MADE AT 300DEGREESK AND THE CHANGES IN THE VALUES WERE TABULATED. ON THE FRESHLY ETCHED SAMPLES ALL 3 MOLS. ACTED AS ACCEPTORS. FOR THESE A TYPICAL VALUE OF TAU IS SIMILAR TO 3-5 MIN AND ON THE HEATED SAMPLES TAU SIMILAR TO 20-30 MIN. THE DIFFERENCE IS DUE TO THE DIFFERENCE IN THE H SUB2 O CONCN. IN THE OXIDE LAYER.

FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--EXISTENCE OF A QUASI LIQUID FILM ON THE SURFACE OF ICE -U-

AUTHOR-(03)-KVLIVIDZE, V.I., KISELEV, V.F., USHAKOVA, L.A.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(5), 1088-90

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--NMR SPECTRUM, ICE, LINE INTENSITY, LINE WIDTH, SURFACE FILM, FLUID STATE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1495 STEP NO--UR/0020/70/191/005/0188/1090

CIRC ACCESSION NO--AT0130424

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AT0130424
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FROST FORMED BY LIQ. N ON THE WALLS OF A DEWAR FLASK WAS INVESTIGATED BY NMR. THE SPECTRA THUS OBTAINED CONSISTED OF 2 COMPONENTS: A WIDE AND A NARROW COMPONENT. THE NARROW COMPONENT WAS CLEARLY DISCERNIBLE AT LARGER THAN OR EQUAL TO 268DEGREESK, AND ITS INTENSITY INCREASED WITH TEMP. A WEAK NARROW COMPONENT WAS ALSO OBSD. IN NMR SPECTRA OBTAINED FROM POLYCRYST. ICE PRODUCED BY FREEZING WATER IN AN AMPUL. THE WIDE COMPONENT OF THE SPECTRUM IS PRODUCED BY RIGIDLY FIXED MOLS. IN THE CRYST. LATTICE OF ICE, WHEREAS THE NARROW COMPONENT IS PRODUCED BY LABILE H SUB2 O MOLS. OR PROTONS. THE CURVE DESCRIBING THE RELATION BETWEEN THE CONTENT OF THE NARROW SPECTRUM COMPONENT AND TEMP. OBTAINED EXPTL. AGREES QUAL. WITH THE THEORETICAL CURVE OF N. H. FLETCHER, 1963. THIS AGAIN INDICATES THAT THE NARROW COMPONENT OF THE SPECTRUM OF HIGHLY DISPERSED ICE IS DUE TO LABILE WATER MOLS. FORMING A QUASI LIQ. FILM ON THE SOLID ICE CRYSTALS. A ROUGH EST. OF THE CORRELATION TIME TAU SUBC OF THE LABILE MOLS. BY THE THEORY OF RELAXATION GIVES A VALUE OF TAU SUBC SIMILAR TO 10 NEGATIVE PRIME8, WHEREAS FOR ICE IT IS SIMILAR TO 10 NEGATIVE PRIME4 AND FOR ORDINARY WATER SIMILAR TO 10 NEGATIVE PRIME11. THIS VALUE OF TAU SUBC IS VERY NEAR THE VALUE FOR WATER ADSORBED ON SILICA GEL. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

KISELEV, V. I., and TURDTIYSEV, M.

"Some Biological Indicators of Carbohydrate Metabolism in Muscle and Liver Tissue of Dogs Under the Influence of General Vibation"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 9, 1971, pp 45-46

Abstract: Carbohydrate metabolism in muscle and liver tissues of dogs was studied in animals subjected to vibration in an electric vibrator, (group 1) subjected to the noise of the vibration, (group 2) or controls. The first group showed increased lactic acid levels in muscle tissues and liver tissue when compared to the control group. In group two the lactic acid level of muscle tissues increased to a lesser extent, while little significant change was observed in the liver tissue. Both the first and second groups exhibited decreased glycogen levels in muscle and liver tissues. Fructose-1,6-diphosphate-aldolase activity also increased in both groups, but to a lesser degree in the second group. Statistically significant shifts can be observed in carbohydrate metabolism when organisms are subjected to vibration and noise.

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USSR UDC 621.372.413

YEPISHIN, V. A., KISELEV, V. K.

"A Plane-Parallel Open Resonator With Circular Mirrors With Apertures in the Centers for Radiation Output"

Moscow, Radiotekhnika i Elektronika, vol 16, No 11, Nov 71, pp 2027-2031

Abstract: Analytical formulas are found within the framework of perturbation theory for the eigenfunctions and eigenvalues of quasi-optical cavities with flat circular reflectors having circular apertures in the centers. The energy losses per pass as calculated by an approximate formula derived in the paper are compared with the results of exact computer calculations given in the literature. Satisfactory coincidence is observed over a fairly extensive range of resonator parameters. One figure, bibliography of fifteen titles.

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USSR UDC 681.178.9

KAShchEYeV, A. M., KISELEV, V. M., LETYaGIN, Yu. V., NOVIKOV, V. A., ROZANOV, Ye. V., ROZENKRANTs, Yu -K. V. and ShAPIRO, B. I.

"A Device for Recording Pulse Signals"

USSR Author's Certificate, Class G 01 d 9/36, G 06 m 3/00, No 334478, filed 25 Dec 70, published 23 May 72 (from RZh-Avtomatika Telemechanika i Vychislitel'naya Tekhnika, No 3, Mar 73, Abstract No 3 A378 P)

Translation: A device is proposed for recording pulse signals, containing "AND" circuits and an "OR" circuit, the latter attached to a decoder connected with electromagnetic recording machines. To ensure a quantitative evaluation of the information recorded over time, a reduction of deviations, and a simplification of service, the device contains a time code shaper connected directly and through the control block to distributors attached to the numeric code sensors, connected in turn to the corresponding AND circuits. The AND circuits are connected to the OR circuit. The outputs of the time code shaper are connected to the electromagnetic recording machines, and electromagnetic relays are connected to a pulse group generator. One illustration.

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USSR

BELOUSOVA, I. M., BOBROV, B. D., KISELEV, V. M., KURZENKOV, V. N., KREPOSTNOV, P. I.

"Photodissociative I^{127} Laser in a Magnetic Field"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy iziki, Vol 65, No 2 (8), 1973, pp 524-536

Abstract: A study was made of the effect of a magnetic field and also a number of other factors on the kinetics of the radiation spectrum of a photodissociative I^{127} laser in the $2P_{1/2}$-$^2P_{3/2}$ transition. The behavior of the spectrum of the induced radiation was investigated in the presence and absence of a magnetic field, and the superthin splitting constant of the upper operating level of the iodine atom $A_{1/2}$ was determined experimentally. A broadening of the luminescence line in the operating transition of the iodine atom during collisions with C_2F_7I molecules and also with argon and xenon atoms found. Then the corresponding broadening cross sections and the Van der Waals constants were determined for the interaction of the iodine atom with these gases. The calculated values of the frequencies and amplification factors for the most intense groups of Zeeman components were obtained with a varia-

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USSR

BELOUSOVA, I. M., et al., Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 65, No 2 (8), 1973, pp 524-536

tion explaining the behavior of the induced radiation spectrum with the variation of the magnetic field. The magnitude of the relaxation between sublevels with different F of the upper operating state $^2P_{1/2}$ was evaluated.

The study of the spectral composition of the induced radiation in the $^2P_{1/2}$-$^2P_{3/2}$ transition of the iodine atom showed that the radiation kinetics of the given laser, which is a complex spectral system, depends on a number of factors such as the magnitude of the magnetic field, the gas pressure in the cell, and the magnitude of the pumping energy. The characteristics of the output radiation of the laser are determined not only by the kinetics of the chemical reactions but also by the structure of the upper and lower transition states, which varies even during the oscillation pulse time. This factor must be considered when constructing various kinetic models of the photodissociative iodine laser. In turn, for a more detailed study of the behavior of the oscillation spectrum in a magnetic field the population kinetics on all sublevels of the investigated transition must be considered.

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USSR

UDC: 621.373:535

BELOUSOVA, I. M., KISELEV, V. M., KURZENKOV, V. N.

"Line Width of Stimulated Emission of Atomic Iodine on the Transition $^2P_{1/2}-^2P_{3/2}$"

Leningrad, Optika i Spektroskopiya, Vol 33, No 2, Aug 72, pp 210-213

Abstract: An experimental study is made of the width of the line and the mode structure of stimulated emission of atomic iodine-127 on the spontaneous transition $^2P_{1/2}-^2P_{3/2}$ in a photodissociation laser. It was found that only one of the many possible longitudinal emission modes is realized, regardless of the amplification factor, the presence of a magnetic field, distance between mirrors, or the addition of an inert gas. The emission line width is less than 0.002 Å (35 MHz). The emission line width does not exceed 0.002 Å with addition of an inert gas over a broad range of variation in pressure and amplification factor.

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USSR

UDC: 621.373:535(206.3)

BELOUSOVA, I. M., KISELEV, V. M., KURZENKOV, V. N.

"Spectrum of Stimulated Emission of Atomic Iodine on the Hyperfine Structure of the Transition $^2P_{1/2}$-$^2P_{3/2}$ (7603 cm^{-1})"

Leningrad, Optika i Spektroskopiya, Vol 33, No 2, Aug 72, pp 203-209

Abstract: An experimental study is made of the emission spectrum of atomic iodine-127 on the hyperfine structure of the transition $^2P_{1/2}$-$^2P_{3/2}$ in the free emission mode. The emission spectrum from a photodissociation laser was registered in the experiment. A diagram of the experimental installation is given and its operation is described. The results of the measurements showed that of the six components of the hyperfine structure of the spontaneous transition $5p^2P_{1/2}$-$5p^2P_{3/2}$ of atomic iodine, three are realized in stimulated emission: the components 3-3, 3-4, and one of the components 2-1 or 2-2. It is shown that the spectrum is multicomponent in the presence of a magnetic field; the number of components being realized in emission is determined by the amplification factor. By compensating the magnetic fields of the pumping currents, stable single-mode

USSR

BELOUSOVA, I. M., et al., Optika i Spektroskopiya, Aug 72, pp 203-209

emission can be achieved without any power loss as compared with multi-component emission. The other components of the hyperfine structure are not realized in emission in the absence of a magnetic field, regardless of the amplification factor, which fact is apparently due to the strong competition between them under these conditions.

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Acc. Nr: AP0049165 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR 0057

104032q Coefficients of trifluoroiodomethane and heptafluoroiodopropane diffusion in inert gases. Bulousova, I. M.; Kiselev, V. M.; Kurzenkov, V. N. (USSR). *Zh. Tekh. Fiz.* 1970, 40(2), 402–5 (Russ). The diffusion coeffs. of the following binary mixts. were studied: He–CF_3I, He–C_3F_7I, Ne–CF_3I, Ne–C_3F_7I, Ar–CF_3I, Ar–C_3F_7I, Xe–CF_3I, and Xe–C_3F_7I. The diffusion, as a function of time, was described by the J. Crank (1956) equation. It was assumed that the diffusion coeff. does not depend on the concn. of the mixts.; however, there is a weak dependence. The diffusion coeffs. are of interest for characterizing the diams. of the iodide mols., the potentials of interaction, and the bond types. L. Holl

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7 14

1/2 035 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--USE OF LUBRICANTS DURING THE CONTINUOUS PRODUCTION OF HOLLOW PANELS -U-

AUTHOR-(03)-GURTOVNIK, I.G., ANTIPOV, V.V., KISELEV, V.N.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (6), 74

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--HONEYCOMB STRUCTURE, GLASS CLOTH, PHENOL FORMALDEHYDE RESIN, HOLDING LUBRICANT, GRAPHITE, OLEIC ACID, INDUSTRIAL PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0705 STEP NO--UR/0191/70/000/006/0074/0074

CIRC ACCESSION NO--AP0136144

UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136144

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PRODUCTION OF HONEYCOMB TYPE PANELS OF GLASS CLOTH IMPREGNATED WITH PHNH SUB2 PHENOL HCHO RESIN REQUIRES SPECIALLY COATED STAMPING DIES OR THE INTERPOSITION OF NONADHESIVE FILMS (CELLOPHANE OR POLYAMIDE). A 2COMPONENT LUBRICANT CONTG. OLEIC ACID AND GRAPHITE WAS FOUND ADEQUATE AND MORE ECONOMICAL THAN THESE FILMS.

UNCLASSIFIED

USSR UDC: 681.325.65

KISELEV, V. P.

"A Dynamic Logic Element"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 10, Apr 71, Author's Certificate No 298072, Division H, filed 13 Jun 69, published 11 Mar 71, p 193

Translation: This Author's Certificate introduces a dynamic logic element which contains an input logic assembly, a kipp oscillator and a flip-flop. As a distinguishing feature of the patent, the device is simplified and the frequency range is extended by using two series-connected transistors of the same conductivity type with resistors between their bases in each arm of the kipp oscillator. The lower transistors have grounded emitters, and resistors are connected between the bases of the upper transistors and a source of DC voltage. The base of the lower resistor in the first arm and the base of the upper transistor in the second arm are connected through diodes to a synchro-pulse source. The base of the upper transistor in the first arm is connected to the emitter-collector point of the second arm, and the base of the lower transistor in the second arm is connected to the collector of the upper transistor in the first arm, and through a resistor to the input logic assembly.

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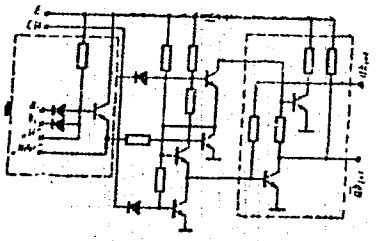
KISELEV, V. P., USSR Author's Certificate No 298072

The collector of the upper transistor in the second arm and the emitter--collector point of the first arm are connected to the bases of the flip-flop transistors.



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USSR

UDC 669.71.053.24

OSTANIN, YU. D., KISELEV, V. P., DRESVIN, S. V., PARKHOMENKO, A. S.

"Study of the Power Characteristics of a Plasmatron and Determination of Certain Parameters of the Argon Plasma Arc"

Tr. Vses. N-i. i Proyektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, no. 71, pp 201-207. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G129 by the authors).

Translation: The energetic characteristics of a plasmatron suggested for the performance of technological processes involved in thermal methods of the production and refining of Al are studied. The basic parameters of the argon plasma arc are determined: arc temperature 11,000-14,000°K, heat flux $(1.29\text{-}3.62)\cdot10^4$ w/cm^2. 5 figs; 1 table.

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USSR

UDC: 621.316.8:621.315.5

PERTSEV, A. V., KISELEV, V. S., BASHAVNIKOV, V. A.

"Adjustment of Tantalum Film Resistors"

Kiev, IVUZ Radioelektronika, Vol 15, No 5, May 72, pp 626-630

Abstract: The authors discuss questions of adjustment of tantalum film resistors by the method of localized anodizing of resistor sections. The method of calculation is given together with engineering formulas and graphs for calculating the dimensions of localized anodized sections, or the number of such sections when dimensions are predetermined, taking resistor values before and after anodizing as a point of departure. Experimental results agree with the calculations.

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USSR UDC:620.179.13

BEKESHKO, N. A., UPADYSHEV, A. B., KISELEV, V. S.

"Quality Testing of Integrated Circuits by Thermal Radiation of the Surface"

Defektoskopiya, No. 3, 1970, pp. 101-105

Abstract: Results are presented from experimental studies involving location of defects in thin-film integrated circuits by a thermal field method. Testing of the thermal field of integrated circuits allows location of deviations of thermal operating modes from the nominal modes, and in some cases allows reasons for formation of defects to be determined. The thermal testing method allows circuits both with and without protective coverings to be tested. The protective coverings change the picture of the thermal field but do not prevent determination of defects on the basis of changes in the thermal field. Comparison of the isothermal picture of the thermal field and the geometric dimensions of the circuit elements shows that the half width of the signal maximum from elements with protective coatings is increased by 2-3 times.

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USSR

UDC 621.383.51/52

ALTAYSKIY, YU.M., KALABUKHOV, N.P., KISELEV, V.S.

"Investigation Of The Local Characteristics Of The Photoelectric Effect In β-SiC"

Vestn. Kiyev. politekhn. in-ta. Ser. radioelektron (Bulletin Of Kiev Polytechnical Institute. Radioelectronics Series), 1970, No 7, pp 123-26 (from RZh--Elektronika i yeye primeneniye, No 1, January 1971, Abstract No 1B854)

Translation: A description is presented of the equipment and the results of an investigation of the local (probe) characteristics of the photoelectric effect in monocrystals of β-SiC. It is shown that the light probe method can be used for detection of inhomogeneities of specimens and determination of the area and configuration of p-n junctions. The results of the investigation show that the platy crystals of β-SiC, which are obtained by decomposition of methychlorosilan in hydrogen, in the majority of cases have a high degree of structural uniformity. Determination of the area of a p-n junction by the method described is found in good agreement with microscopic measurements and computations. 3 ill. 8 ref. N.S.

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1/2 014 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--ANALYSIS OF PP SCATTERING AT 640 MEV BY TAKING INTO ACCOUNT THE TOTAL CROSS SECTIONS AND PI MESON ANGULAR DISTRIBUTIONS -U-

AUTHOR-(03)-VOVCHENKO, V.G., ZULKARNEYEV, R.YA., KISELEV, V.S.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58, NR 3, PP 825-830

DATE PUBLISHED----------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PROTON SCATTERING, PHASE SHIFT ANALYSIS, INTEGRAL CROSS SECTION, PION, ANGULAR DISTRIBUTION, ELASTIC SCATTERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1976/2061 STEP NO--UR/0056/70/058/003/0825/0830

CIRC ACCESSION NO--AP0043589

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0043589

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A PHASE SHIFT ANALYSIS OF 640 MEV PP COLLISIONS IS PERFORMED. IN DISTINCTION TO PREVIOUS WORK THE PRESENT ANALYSIS IS CARRIED OUT BY TAKING INTO ACCOUNT THE PIPOSITIVE 0 MESON ANGULAR DISTRIBUTIONS. FOUR APPROXIMATELY EQUALLY PROBABLE SOLUTIONS ARE OBTAINED. MORE PRECISE EXPERIMENTAL DATA ON ELASTIC PP SCATTERING ARE NECESSARY IN ORDER TO MAKE THE ANALYSIS LESS AMBIGUOUS.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--THE IMPORTANCE OF ARTERIOGRAPHY IN EVALUATION OF THE COLLATERAL CIRCULATION IN OCCULSION OF THE FEMORAL ARTERY -U-

AUTHOR--KISELEV, V.YA.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 4, PP 86-94

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BLOOD VESSEL, BLOOD CIRCULATION, ANGIOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0036 STEP NO--UR/0589/70/104/004/0086/0094

CIRC ACCESSION NO--AP0105135

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105135

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BASED ON THE ANALYSIS OF THE COLLATERAL BLOOD CIRCULATION, ACCORDING TO THE DATA OF 103 ARTERIOGRAMS IN OCCLUSIVE LESIONS OF THE FEMORAL SUBPATELLAR ZONE. 8 PRINCIPAL TYPES OF VASCULAR AFFECTION HAVE BEEN DIFFERENTIATED. PECULIARITIES OF THE COLLATERAL CIRCULATION WERE STUDIED IN EACH GROUP. EVERY TYPE OF VASCULAR AFFECTION IS CHARACTERIZED BY A SYSTEM OF COLLATERAL BLOOD CIRCULATION WITH DIFFERENT VARIANTS OF INFLOW AND OUTFLOW ROUTES. CONTRAST INVESTIGATION OF THE LOWER EXTREMITIES VESSELS ENABLED TO DETERMINE THE REGULARITIES IN DEVELOPMENT OF COLLATERALS, THEIR ROLE AND SIGNIFICANCE IN PATHOLOGICAL CONDITIONS OF ARTERIAL CIRCULATION.

UNCLASSIFIED

USSR

UDC: 621.791.052:621.735.2

KISELEV, YE. D. and SMOLIY, V. A. (Engineers), Main Welding Laboratory, Main Administration of Hoisting and Conveying Machinery Manufacture, Krasnoyarsk

"Effect of Cold Straightening on the Mechanical Properties of Welded Joints"

Moscow, Svarochnoye proizvodstvo, No 1, Jan 72, pp 22-24

Abstract: In order to determine the practicability of cold straightening of welded parts of crane structures, a study was made on both the strength and plastic properties of welds as a function of straightening conditions. Use was made of welded specimens from St.3 sp steel, 10, 16, and 30 mm thick with either parallel or perpendicular arrangement of weld lines. The butt welds were done by the automatic submerged technique. The effect of cold straightening on the mechanical properties of welds is shown to increase with the thickness of the sheets. In the tensile tests, the failures appeared to occur in the base metal rather than in the weld metal. There were no cracks in either the weld metal or the heat-affected area. The study indicates that both the strength and plastic properties of butt welds of

USSR

KISELEV, YE. D. (Engineer), et al, Svarochnoye proizvodstvo, No 1, Jan 72, pp 22-24

St.3 sp 10-mm steel sheets after straightening on roll levellers are within GOST 380-60 specifications for St.3 steel. The straightening of butt welds of 16-30 mm sheets with either parallel or perpendicular arrangement of weld lines and axes of beads failed to lower the strength and plastic properties below those specified in GOST 380-60. The straightening of welds of St.3 sp 16-mm steel and higher made under rigid conditions with mutually perpendicular axes of both the welds and beads showed a significant reduction of the plastic properties. (4 illustrations, 2 tables, 2 bibliographic references).

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UNCLASSIFIED

SECTION III

50: Soviet Aerospace Research Facilities

PCS-89
June 71

KISELEV, Ye. Ye.

Name: Institute of Biophysics, Pushchino

Description:

(U) During this quarterly reporting period, 13 new articles were located from the Institute of Biophysics at Pushchino. On the basis of these articles, it was possible to associate 19 new persons with the Institute. These persons are listed below together with the subjects and dates of the articles:

Basurmanov, O. K.	endocrine system	1970(17)
Berestovskiy, G. N.	phospholipids	1970(19)
Gazlyev, A. I.	DNA	1970(19)
Ivannikova, A. G.	plant physiology	1969(20)
Kiselev, Ye. Ye.	muscle physiology	1970(21)
Kravchenko, N. A.	EPR spectra	1970(22)
Narimanov, A. A.	radiation effects	1970(23)
Panov, A. A.	endocrine system	1970(17)
Pasoyan, V. G.	EPR spectra	1970(22)
Petrotikov, V. I.	muscle physiology	1970(21)
Postnikova, G. B.	chromatography	1970(24)
Razhin, V. D.	phospholipids	1970(18)
Revin, A. F.	radiation effects	1970(23)
Sukhoruchkina, L. V.	chromatography	1970(24)
Trincher, K. S.	plant physiology	1969(20)
Vasilov, Yu. V.	radiation effects	1970(23)
Zaikin, A. N.	hydrogen peroxide	1970(25)
Zakrzhevskaya, D. T.	DNA	1970(19)
Zusin, A. M.	DNA	1970(19)

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USSR

UDC 620.178.15

KISELEV, YU. A., FRAKLKENZON, A. G., and PSHENICHNIKOV, YU. V., Novosibirsk Aviation Plant imeni Chkalov, Siberian Scientific Research Institute of Metrology

"Effect of Surface Cleanliness and Form of Products on Results of Hardness Measurement"

Moscow, Zavodskaya Laboratoriya, No 4, 1973, pp 459-461

Abstract: A study was made of the dependence of Brinell, Rockwell, and Vickers hardness numbers of 30KhGSA, 30KhGSNA, VNS-5, and 45 brand steels and of V95 and AK4-1 aluminum alloys on the non-parallelism of the supporting and the investigated surfaces, the processing cleanliness, and the radius of curvature of finished products. The results are discussed by reference to diagrams and tabulated data showing the hardness by HB, HRC, HRB, HRA, and HV scales determined as an arithmetic mean from five impressions. The results indicate the existence of allowable angles of non-parallelism of surfaces and of their curvature by measuring the Rockwell hardness; they also reflect the influence of

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USSR

KISELEV, YU. A., Zavodskaya Laboratoriya, No 4, 1973, pp 459-461

surface cleanliness in hardness measuring by Rockwell, Brinell, and Vickers methods. The effect of cleanliness, non-parallelism, and curvature of the surface on the deviation of hardness numbers from actual values is explained. Three figures, one table, six bibliographic references.

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Power, Turbine, Engine, Pump

USSR UDC: 62-235.5

MALYUTIN, P. V., GUNYAYEV, G. M., VORONTSOV, I. A., RYAZANTSEV, A. F., BARDINA, N. P., STEPANENKO, N. D., KARIMBAYEV, T. D., KISELEV, Yu. A., GORSHKOV, L. A.

"A Turbine Blade"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 21, Jul 72, Author's Certificate No 344168, Division F, filed 31 Aug 70, published 7 Jul 72, p 135

Translation: This Author's Certificate introduces a turbine blade for an axial compressor made of a laminar composition material. As a distinguishing feature of the patent, the rigidity and vibration strength are increased by making the blade from alternating layers of glass and carbon fiber fillers oriented relative to the longitudinal axis of the blade, 34-45% of the fiberglass-filled layers being oriented at angles from 0 to ±15°, while 5-15% of the fiberglass-filled layers are oriented at angles from ±75 to 90°, 20-30% of the carbon fiber-filled layers are oriented at angles from 0 to ±15°, and 20-30% of the carbon fiber-filled layers are oriented at angles from ±45 to ±60°.

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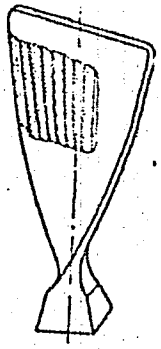
USSR

MALYUTIN, P. V. et al., USSR Author's Certificate No 344168



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UDC 621.311.62

USSR

KISELEV, YU. F.

"Superconducting Solenoid Current Stabilizer"

Moscow, Pribory i Tekhnika Eksperimenta, No 5, 1972, pp 162-163

Abstract: A compact (360 × 410 × 490 mm^3) precision 0-100 A current stabilizer for a superconducting solenoid is described. The 1UT401 integrated microcircuit is used. The current instability is $7 \cdot 10^{-6}$ $hours^{-1}$. The temperature instability is $2 \cdot 10^{-6}$/°C. A study was made of the automatic current input (output) to the solenoid and sweep in the range of 0-6% of the base current. The current input (output) and sweep rate is regulated smoothly. The principle permits calibrated current shifts to 0.002%.

USSR UDC 533.9.082.5

GOLOVOROD'KO, V. T., KISELEV, Yu. M.

"Utilization of the Doppler Effect for Measurement of Plasma Velocity"

Teplofizika Vysokikh Temperatur, Vol 9, No 6, 1971, p. 1248-1252.

Abstract: An apparatus and method are described for measurement of the velocity of directed motion of a plasma. High-resolution spectrometers are also described, allowing measurement of velocity on the basis of the natural radiation of a plasma in the 10^2-10^6 m/sec range with an error of 3%. Interpretation of the results of measurement involving recording of doppler shifts of the spectral lines is studied.

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USSR

UDC 517.934

KISELEV, YU. N., Moscow Power Institute

"The Differentiability of Mapping Which Describes Isochronic Surfaces in a Linear Problem of Optimal Speed of Response"

Minsk, Differentsial'nyye Uravneniya, Vol 7, No 8, Aug 71, pp 1385-1392

Abstract: The author establishes the differentiability for mapping $T(p)$ and obtains compact formulas for any derivatives of any order. He examines the control object whose motion in phase space X^n of variables $x^1, \ldots, x^n$ is described by a linear vector differential equation. After formulating the problem, the author describes and proves first- and second-order derivatives. He states two theorems and gives their proof. He then discusses auxiliary structures and examines a differential operator. Two lemmas are stated and proof is derived. Finally, he discusses derivatives of any order and states a theorem which he proves. The method of mathematical induction is used, and the continuity of the derivatives follows from analyzing the formula

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USSR

KISELEV, YU. N., Differentsial'nyye Uravneniya, Vol 7, No 8, Aug 71, pp 1385-1392

$$\frac{\partial^m \xi_T^{k_0}(\rho)}{\partial \rho_{k_1} \cdots \partial \rho_{k_m}} = (-1)^m \sum_{\rho=1}^{r} \sum_{s=1}^{s_\rho} \left\{ \Delta u^\rho(\tau, \rho) Q^{m-1}_{\rho \gamma_\rho(\tau)} \times \right.$$

$$\left. \times \left[\frac{\prod_{\sigma=0}^{m} \gamma_\rho^{k_\sigma}(\tau)}{\dot{p}\gamma_\rho(\tau)} \right] \right\}_{\tau=\tau_{\rho_s}(\rho)}, \quad 1 \leqslant k_0, k_1, \ldots, k_m \leqslant n, \quad m=1, 2, \ldots.$$

The article contains 3 bibliographic entries.

2/2

USSR

UDC 619.616.42-075:636.4

MURATOV, S. I., BURDEYNYY, V. V., Ivanovo Agricultural Institute, KISELEV, Yu. T., Ivanovo Oblast Veterinary Laboratory, and ZAV'YALOV, N. D., Vladimir Oblast

"The Serum Ring Test in the Diagnosis of Brucellosis in Swine"

Moscow, Veterinariya, No 11, 1972, pp 61-62

Abstract: Muratov's serum ring test (SRT) can detect the presence of brucellosis in a herd of animals within a few hours. Early studies showed it to be effective in diagnosing the disease in buffalos, reindeer, and mink. This report reveals that the test is specific when applied to swine serum. The results of the SRT test were compared with those of the agglutination and complement-fixation tests performed on blood samples from 424 swine (115 on 2 affected farms and 309 on 10 healthy farms). The positive results of the SRT coincided with those of the other tests only in the case of animals on the affected farms. The reactions were negative in the case of animals on the healthy farms.

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UNCLASSIFIED

TITLE--REACTIVE CHANGES IN THE NERVE ELEMENTS OF THE SOFT TISSUES IN THE ORAL CAVITY IN DISEASES OF THE ALIMENTARY TRACT -U-

PROCESSING DATE--23OCT70

AUTHOR-(02)-URBANOVICH, L.I., KISELEVA, A.F.

COUNTRY OF INFO--USSR

SOURCE--STOMATOLOGIYA, 1970, VOL 49, NR 3, PP 29-31

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DUODENUM, LESION, LIVER DISEASE, NERVE DEGENERATION, DIGESTIVE SYSTEM DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0095

STEP NO--UR/0511/70/049/003/0029/0031

CIRC ACCESSION NO--AP0120795

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120795

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS OF MORPHOLOGICAL STUDY OF NERVE ELEMENTS OF THE SOFT ORAL TISSUES IN 42 PATIENTS OUT OF 176 SUFFERING FROM ALIMENTARY DISEASES (CHRONIC HYPO AND HYPERACIDIC GASTRITIS, COLITIS, ENTERITIS, COMPLICATED GASTRODUODENAL ULCERS, INFLAMMATION OF THE LIVER AND BILE DUCTS). THERE WERE REVEALED REACTIVE, DYSTROPHIC AND DESTRUCTIVE CHANGES OF THE NERVOUS TISSUE. THE EXTENT, RAPIDITY OF DEVELOPMENT AND DEPTH OF THE REFERRED TO LESIONS ARE DIRECTLY RELATED TO THE DURATION AND SEVERITY OF THE PRINCIPAL AFFECTIONS. FACILITY: KAFEDRY TERAPEVTICHESKOY STOMATOLOGII I PATOLOGICHESKOY ANATOMII KIEVSKOGO MEDITSINSKOGO INSTITUTA.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

1/2 025

TITLE--ELECTROLYSIS OF MOLYBDENUM, VI, WITH A MERCURY CATHODE IN THE PRESENCE OF NICKEL AND COBALT -U-

AUTHOR-(03)-SPERANSKAYA, YE.F., MERTSALOVA, V.YE., KISELEVA, A.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43 (4), 896-8

DATE PUBLISHED----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--ELECTROLYSIS, MERCURY, NICKEL, COBALT, ELECTRODEPOSITION, AMALGAM, NICKEL COMPOUND, COBALT COMPOUND, CITRIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0975 STEP NO--UR/0080/70/043/004/0896/0898

CIRC ACCESSION NO--AP0131560
UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0131560

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF NI(II) OR CO(II) ON THE ELECTRODEPOSITION OF MO(VI) ON A HG CATHODE IN CITRIC ACID SOLNS. AT 70DEGREES WAS INSIGNIFICANT. NO SIGNIFICANT INCREASE OF MO IN THE TERNARY AMALGAM WAS FOUND OVER THAT FOUND IN THE BINARY AMALGAM. THE REASON FOR THIS LACK OF INCREASE IN MO DEPOSITED WAS DUE TO SELF DISSOLN. OF THE FRESHLY DEPOSITED MO. THE DISSOLN. OF THE TERNARY AMALGAMS IN N KOH YIELDED THE HYDROXIDES OF NI OR CO AND MOLYBDATE ION.

UNCLASSIFIED

USSR

UDC 665.644.4.095

ASPEL', N. B., KISELEVA, E. A., and RATNER, YE. M., Lengiprogaz

"Intensification of the Equipment for Catalytic Reforming for the Production of High Octane Gasoline"

Moscow, Neftepererabotka i Neftekhimiya, No 2, 1972, pp 3-6

Abstract: An analysis was performed of the positive and negative aspects in the utilization of the equipment for catalytic reforming. Some suggestions have been made which should lead to improved technology of the production, modernization of the plants and intensification of their utilization. The intensification could be obtained on existing equipment by slight modification of the process, or of the instruments, or by complete overhaul and modernization of the existing plants.

1/2 029 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--PROPERTIES OF MODIFIED ACETATE FIBERS OBTAINED FROM POLYMER MIXTURES -U-

AUTHOR--KISELEVA, G.F.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VOLOKNA 1970, (1), 60-2

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--ACETATE, CELLULOSE RESIN, ELASTICITY, SYNTHETIC FIBER, POLYURETHANE RESIN, BREAKING STRENGTH, POLYMER STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1811 STEP NO--UR/0183/70/000/001/0060/0062

CIRC ACCESSION NO--AP0100385

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0100385

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLNS. OF POLYURETHANES I OR II IN SECONDARY CELLULOSE ACETATE (III) CONTG. SMALLER THAN OR EQUAL TO 20PERCENT I OR II ARE HOMOGENEOUS FOR AT LEAST 1 MONTH AND CAN BE SPUN INTO FIBERS OF HIGHER ELASTICITY THAN III FIBERS. THE OPTIMUM CONCN. IS 20PERCENT I OR II IN III. II-III FIBERS HAVE 26.4PERCENT ELONGATION AT BREAK VS. 18.0 FOR III FIBERS, WITHSTAND 13,000 RUB CYCLES VS. 2800 FOR III, AND HAVE SOMEWHAT LOWER BREAKING STRENGTH. THE D. AND THE HEAT OF SOLN. OF THE BLENDED FIBERS ARE HIGHER THAN CALCD. ADDITIVELY, SHOWING THAT THERE IS PACKING AND INTERPENETRATION OF I OR II WITH III.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--RHEOLOGICAL PROPERTIES OF CONCENTRATED SOLUTIONS OF POLYMER MIXTURES -U-

AUTHOR-(03)-KISELEVA, G.E., PENKOVA, M.P., KONKIN, A.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VOLOKNA 1970, (1), 13-16

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYMER RHEOLOGY, CELLULOSE RESIN, ACETATE, POLYACRYLATE RESIN, COPOLYMER, VISCOMETER, FLUID VISCOSITY, SHEAR STRESS/(U)AKV2 VISCOMETER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1818 STEP NO--UR/0183/70/000/001/0013/0016

CIRC ACCESSION NO--AP0100392

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100392

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RHEOL. PROPERTIES OF CONCD. (12 TO 22PERCENT) SECONDARY CELLULOSE ACETATE (I), POLY(ME ACRYLATE) (II), I PLUS II MECH. MIXT., AND 80:20 I-II GRAFT COPOLYMER SOLNS. IN HCONME SUB2 OR ME SUB2 CO WERE STUDIED AS A FUNCTION OF TEMP., POLYMER CONCN. IN SOLN., AND THE CHEM. COMPN. OF THE SOLVENT AT 20-60DEGREES BY MEANS OF A CAPILLARY VISCOMETER AKV-2 AT A SHEAR STRESS RANGE OF 3 TIMES 10 PRIME4 MINUS 8 TIMES 10 PRIME5 DYNE-CM PRIME2. GRAFTING OF FLEXIBLE II MACROMOLS. ON I LED TO INCREASED SOLN. VISCOSITY, WHEREAS THE PRESENCE OF I AS A COMPONENT OF THE MECH. MIXT. HAD A PLASTICIZING EFFECT ON THIS SOLN. AND DECREASED SOLN. VISCOSITY.

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201330003-7"

2/2 011 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0123574

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE ABSENCE OF AN EXCESS OF CL NEGATIVE CONCN. IN THE SOLN., PTH SUB4 YCL SUB2 (I) (Y PRIME NEGATIVE4 EQUALS ANION OF EDTA) CONVERTS IN AQ. SOLNS. (AT PH LESS THAN 2) TO PTH SUB4 Y(H SUB2 O) SUB2 PRIME POSITIVE2 AND PTH SUB2 Y. PT PRIME NEGATIVE2, HAVING TETRADENTATE Y, FORMS ON DEPROTONATION OF PTH SUB2 Y. I EXIST IN SOLNS. CONTG. MORE THAN 1M NACL AND ON INCREASE OF PH OF THE SOLN. FROM PH 2 TO PH 8 IT DEPROTONATES TO PTYCL SUB2 PRIME NEGATIVE4 HAVING BIDENTATE Y. IN THE PRESENCE OF NACLO SUB4, THE POLAROGRAPHIC CURVE OF I HAS 2 WAVES (WITH E SUB1 HALF MINUS 0.30 AND MINUS 0.54 V) AND IN THE PRESENCE OF NACL, ONLY 1 WAVE. FACILITY: INST. OBSHCH. NEORG. KHIM. IM. KURNAKOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR UDC 613.2:576.858.23

KISELEVA, L. F., Scientific Research Institute of Maternity and Child Welfare, Sverdlovsk

"Viability of Poliomyelitis, ECHO, and Coxsackie Viruses in Some Food Products"

Moscow, Voprosy Pitaniya, No 6, Nov/Dec 71, pp 58-61

Abstract: Samples of the most common food products were inoculated with eight enterolvirus strains, kept under the usual household and restaurant storage conditions for 10 days, and the survival period of the viruses was determined. In kefir and sterilized and nonsterilized water and milk, the viruses survived in high concentrations throughout the period of investigation at both storage temperatures 20°C and 4°C. In bread, the viruses survived for at least 4 days, and their concentration in wrapped bread was higher than in bread stored open. It is concluded that at the outbreak of an epidemic of enteroviral diseases, prime attention should be focused on investigating and decontaminating food products.

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UDC: 621.373:530.145.6

USSR

KISELEVA, L. I.

"Renovating the Output Apertures and Discharge Tubes of Optical Masers"

Elektron. tekhnika. Nauchno-tekhn. sb. Gazorazryadn. pribory (Electronic Technology. Scientific and Technical Collection. Gas-Discharge Devices), 1970, vyp. 2(18), pp 135-136 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D229)

Translation: The output apertures of gas lasers are connected to the discharge tubes by using K-400 organosilicon cement. The cement joint has adequate mechanical strength, and is vacuum tight up to a temperature of 270°C. Failure of the cemented joint takes place as a result of carbon burnout at temperatures exceeding 400°C. However, heating the cement joint between the aperture and the discharge tube increases by several times the coefficient of losses of an output aperture made from high-quality fused quartz. A technique is worked out for renovating the output apertures and discharge tubes of gas lasers which precludes any change in the optical characteristics of the apertures: the coefficient of losses and the quality of polishing. According to the proposed technique for renovating apertures and discharge tubes, the cement joint is completely dissolved over a period of 6—8 days in a concentrated sulfuric acid solution. The operation is carried out on

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KISELEVA, L. I., Elektron. tekhnika, Nauchno-tekhn. sb. Gazorazryadn. pribory, 1970, vyp. 2(18), pp 135-136

an installation which permits simultaneous renovation of 20 discharge tubes and apertures. Each tube is accommodated in an individual cell, and the bottom of the cells is covered with Teflon shavings (turnings from Teflon parts) to keep the polished surface of the apertures from being scratched. The cathode and anode vessels are cut from the tubes to be renovated and sulfuric acid is poured into the installation to a depth of 10-15 cm so that the inner surface of the cemented joint is completely immersed in the solution. After 6-8 days, the solution is drained out through a cock located in the side wall of the installation. The apertures are thoroughly washed first in tap water and then in distilled water, and rubbed with cotton soaked in alcohol. After this, the apertures are checked for losses. The tubes are washed by conventional procedures and may be used again in industry. Resumé.

2/2

UDC: 577.1

USSR

"Second All-Union Biochemical Congress"

Moscow, Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 425-435

Abstract: The Second All-Union Biochemical Congress was held on 20-23 Oct 69 at Tashkent under the auspices of the Uzbek Department of the All-Union Biochemical Society. Symposia on evolutionary biochemistry, the connection between the structure and functions of proteins, the biosynthesis of proteins, the biochemistry of memoranes, biological oxidation, the functional biochemistry of cell structures, the regulation of enzymatic processes, the structure and function of muscles, and other subjects were conducted. The introductory lecture, which dealt with the evolutionary aspects of nucleic acids, was given by A. N. BELOZERSKIY (Moscow). A leading report in the symposium on evolutionary biochemistry was presented by A. I. OPARIN (Moscow), who discussed theories and experimental results pertaining to the origin of life on earth. A report by V. A. STEPANOV (Moscow) dealth with the evolution of protein enzymes. In the symposium on the biosynthesis of proteins, A. A. BAYEV (Moscow) reported the results of work on the structure of various t-RNA and the properties of molecular fragments of valine t-RNA. In the course of this work, for which a State Prize was awarded, the succession of nucleotides in the valine t-RNA chain was fully clarified. A paper by L. L. KISELEVA

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Biokhimiya, Vol 35, No 2, Mar-Apr 70, pp 425-435

(Moscow) dealt with the role of aminoacyl-t-RNA-synthetases in the synthesis of aminoacyl-t-RNA. t-RNA synthetases specific for methionine, formylmethionine, serine, lysine, and phenylalanine have been identified. A report by R. I. SAGLANIK (Novosibirsk) reviewed work on the suppression of the synthesis of virus nucleic acids by nucleases. Animal experiments showed that administration of DNA-ase prevented the death of mice infected with the viruses of tick-born encephalitis, influenza, and foot-and-mouth disease and made guinea pigs insusceptible for a certain length of time to infection with foot-and-mouth disease. The nucleases did not produce any toxic effects. Application of nucleases in the treatment of human virus diseases showed that they were effective in herpetic keratites, adenovirus conjunctivites, tick-born encephalitides, herpes zoster, and other diseases. At present DNA-ase for the treatment of these diseases is being produced industrially. Its application for 4 yrs at major foci of tick-born encephalitis in Siberia yielded very good results. Research is being continued on the use of nucleases in the treatment of virus diseases of farm animals. In the symposium on the biochemistry of membranes, P. G. KOSTRYUK (Kiev) in a report dealing with the transfer of ions in connection with the generation of excitation potentials by nerve cells expressed the opinion that the action of nerve impulse transmitters

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is associated not only with changes in membrane permeability, but also involves a direct effect producing transfer of cations. This was confirmed in a paper by A. A. BOLDYREV (Moscow), who found that acetylcholine inhibited the active transfer of Ca^{++} in a sarcoplasm reticulum fraction. The inhibition was exerted on ATP-ase, which brings about transfer of Ca^{++}, and presumably constituted an effect that makes possible the transfer of Ca^{++} from the reticulum during excitation. Boldyrev pointed out that in view of the localization within muscle cells of the enzymes that regulate acetylcholine metabolism, this effect produced by acetylcholine may be directly related to its functioning as an intracellular regulator of excitation processes. Reports given by members of the Kiev school of biochemists (A. V. PALLADIN, O. V. KIRSENKO, G. L. VAVILOVA, M. K. MALYSHEVA, and others) had a bearing on the functioning of Na-K - activated transport ATP-ases in membranes. I. I. IVANOV (Leningrad) found that ATP gelated sarcoplasm proteins of skeletal muscles, whereas Ca^{++} liquefied the gel that formed. He assumed that a reversible gelation produced in this manner is responsible for the plastic tonus of smooth and striated muscles. In a resolution passed by the Congress, progress in biochemical research was reviewed. It was stated that the membership of the Biochemical Society increased from 3500 to 6500 between the First and Second Congress. Institutes of Proteins, Photosynthesis, and Physiology and Biochemistry

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of Microorganisms were organized within the Academy of Sciences USSR. It was pointed out that it is necessary to conduct more intensive research in several fields including the structure of proteins in relation to their functional activity, biochemical genetics, and (in view of the importance of this field from the standpoint of solution of general problems of biochemistry) the biochemistry of microorganisms and viruses.

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Acc. Nr. AA0034551 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code 0000

70060e Rapid-drying foundry-core binders from organic by-products. Borskaya, E. A.; Kobzeva, Z. A.; Zotov, A. B.; Egorycheva, G. V.; Maknrova, T. F.; Kiseleva, M. S.; Krylov, M. I.; Andrienko, K. A.; Tsyganov, V. I. (Scientific-Research Institute of the Technology of the Automotive Industry) Brit. 1,177,888 (Cl. B 22c), 14 Jan 1970, Appl. 13 Sep 1968; 2 pp. Binders having several years shelf life, for sand cores hardening in <1.5 min in core boxes heated to 240–60°, are obtained by mixing 60–70 parts sulfite liquor by wt. with 15–30 parts polyat. alc. mother soln. from pentaerythritol production, and adding to the mixt. 8–15 parts of an oxidn. catalyst slowly during 30–60 min with stirring or other means to suppress foam and prevent temps. >60–70°. Suitable sulfite liquor or lye has 1.27 sp. gr. Hydrolysates of corn cobs or sawdust can be substituted for it. Suitable mother soln. contains saccharides 11–13, pentaerythritol 8–12, resins 4–10, acids 2–3, and H_2O 60–75%, and has at least 1.16 sp. gr. The oxidn. catalyst can be H_3PO_4, a persulfate, or H_2O_2, and if the latter, not over 3% of a 30% aq. soln. should be used, with a H_2O-cooling jacket for cooling below 25°. The mixed binder should have 1.25–1.3 sp. gr. and 4–4.8 pH. Cores thus bonded retain useful properties 3–4 days. When they also contain up to 3% clay, hardening is faster than 1.5 min and the core strength is increased 25% or more. The collapsibility of the cores after castings are cooled is not impaired by these binders.

George F. Comstock

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KISELEVA, Prof. V. I., and TURDIYEV, M., Chair of Labor Hygiene, Rostov Medical Institute, Rostov

"The State of Carbohydrate Metabolism Under the Influences of General Vibration on the Organism"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 12, Dec 71, pp 44-45

Abstract: The effect of vibrations with an amplitude of 0.3 mm and frequency of 25 cycles on the carbohydrate metabolism of dogs subjected to these vibrations for 1 hr/day for 90 days was studied. The vibration stand produced a noise of 70-75 db. The effects of vibrations/combined with the noise / and of noise alone of animals (I and II, respectively) by analyzing the blood of the animals. The content of sugar in the blood showed wave-like changes in group I and instability in group II. The level of lactic acid in the blood was increased in group I beginning with the 10th day of the experiment. The effect of noise alone on the level of lactic acid was approximately the same, except that the increase was less pronounced and set in only on the 60th day. The content of pyruvic acid in the blood decreased on the 70-80the day in group I, returning to normal towards the end of the experiment. Noise did not produce any changes in the content of pyruvic acid. The activity of fructose-1, 6-phosphate aldolase showed an increase on the 15th day and on the 50-90 days

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in group I and II, respectively. The aldolase activity that was raised in group I had some tendency to return to normal towards the end of the experiment.

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USSR UDC 621.371:551.510.535

ZEVAKINA, R. A., KISELEVA, M. V., PUSHKOVA, G. N., CHERNOVA, V. A.

"Effect of Ionospheric and Magnetic Disturbances on Shortwave Radio Communications"

V sb. Ionosfer. vozmushcheniya i ikh vliyaniye na radiosvyaz' (Ionospheric Disturbances and Their Effect on Radio Communications -- collection of works), Moscow. Nauka Press, 1971, pp 182-192 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1A335)

Translation: A study was made of the variation of the signal intensity as a function of disturbances of the F2 region and magnetic activity according to the data from recording the Moscow transmitter in Murmansk, Magadan and Irkutsk. The transmitter operated round the clock on directional antennas on 10 fixed frequencies from 1.5 to 24 megahertz. It was demonstrated that under quiet and disturbed conditions, the highest signal intensities are observed on frequencies 10-30 percent below the maximum usable frequency. During the disturbances, the signal intensity at all stations drops most significantly when the ionospheric and magnetic disturbances are observed simultaneously. In the case of a significant drop of f_0F2 accompanied by high magnetic activity, communications are interrupted. There are 4 illustrations and 1 table.

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USSR UDC 621.371:551.510.535

KISELEVA, M. V., KIYANOVSKIY, M. P., KNYAZYUK, V. S., LYAKHOVA, L. N., YUDOVICH, L. A.

"Forecasting the Critical Frequencies of the F2 Region"

V sb. Ionosfer. vozmushcheniya i ikh vliyaniye na radiosvyaz' (Ionospheric Disturbances and Their Effect on Radio Communications — collection of works), Moscow, Nauka Press, 1971, pp 74-99 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1A333)

Translation: A study was made of the time and space correlations between the deviations of the critical frequencies of the F2 region from the normal values (Δf_0F2) with respect to ionospheric data for the year of the maximum (1958) and minimum (1964) solar activity. The results with respect to the time correlation are reduced to the following: 1) for middle latitudes, the time stability is greater on days with negative disturbances and least of all on days with positive disturbances; in the equatorial latitudes, on the contrary, the time stability is greatest on days of positive disturbances; 2) in the summer the stability is greater than in the winter; 3) during the day the stability is somewhat higher than at night; 4) during the year of the maximum the stability is higher on the average than during the year of the minimum. The stability

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KISELEVA, M. V., et al., Ionosfer. vozmushcheniya i ikh vliyaniye na radiosvyaz', Moscow, Nauka Press, 1971, pp 74-99

interval (the time period when the correlation coefficient $\rho \geq 0.5$) is highest at latitudes of 40-60°. It drops at latitudes of 10-30° and again increases at the equatorial stations but appreciably less. The time correlation offers the possibility of extrapolation with respect to time in the middle latitudes, especially under conditions of negative disturbance. For the most favorable cases, the correlation equations are compiled for this purpose. A study of the spatial correlation confirmed a strong decrease in the correlation coefficient ρ with distance with respect to longitude and especially with respect to latitude. The spatial correlation is somewhat higher during negative disturbances during the years of maximum solar activity; during the day it is greater than at night. There are 6 illustrations, 8 tables and an 18-entry bibliography.

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USSR

KISELEVA, N. K., and KOLCHIYEVS, V. K., Physico Technical Institute [illegible] A. F. Ioffe

"Oxidation as a Method of Studying Semiconductor Crystals"

Moscow, Zavodskaya Laboratoriya, No 10, 1970, pp 1204-1207

Abstract: A study was made of selective oxidation as a method of investigating semiconductor crystals. $In_xGa_{1-x}Sb$ solid solutions and $In_xGa_{1-x}Sb$-GaSb were used in the study. The method employs two phenomena -- the difference in oxidation rates of crystals with different composition or crystallographic orientation, and the interference of light in thin films of oxide on the surface of the specimen. If a polished surface of an irradiated crystal is subjected to oxidation until the formation of an oxide film 400-5000 Å thick, regions of variable composition show up on this surface, and the film thickness will vary in these regions. Marked oxidation of InSb commences at T = 350° C, and at 500-600° C for GaSb. It is shown that oxidation is an effective method of revealing inhomogeneities. Specific examples are presented of the use of selective oxidation in studying the structure of $In_xGa_{1-x}Sb$-GaSb heterocrystals during crystallization while solid solutions are being pulled from a melt by the Chokhralskiy method.

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